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ABSTRACT

The knowledge work of higher education is carried out in every country in a differentiated structure that divides and allocates tasks within and among institutions; Certain features of differentiation are likely to be common among national systems: the basic sectioning of the natural sciences in such fields as physics, chemistry, and biology, and well-defined subfields thereof, has wide currency. But many features of differentiation, such as the division of labor among institutional types, vary widely among nations. Whatever the combination of sections and tiers within institutions, and sectors and hierarchies among them, the prevailing structure sets many of the problems of coordination and control and conditions nearly all important issues of continuity and reform. (Author/MSE)

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# ACADEMIC DIFFERENTIATION IN NATIONAL SYSTEMS OF HIGHER EDUCATION

by

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Higher education is a social structure for the control and distribution of advanced thought and technique. Its basic organizational forms are locations for discovering, conserving, refining, transmitting, and applying advanced ideas and skills, with the handling of knowledge materials thereby made a common thread in the many specific activities of academic workers. Compared to other social institutions and to education at lower levels, the configuration of tasks is uniquely knowledge-intensive and knowledge-extensive. In every national system, a set of operational units concentrate intensively on specialized fields of knowledge across a spectrum that may range from archeology to zoology, and includes dozens of specialties as diverse as civil engineering, French literature, constitutional law, high-energy physics, and child psychology. This highly unusual broad coverage of finely-tuned specialties grows in scale apace the general enlargement of knowledge in society. The inordinate and growing complexity of tasks, while long sensed by thoughtful practitioners and observers, has in the main been obscured by simplistic statements about the purposes of higher education. Doctrines that define the university as an intellectual community confronting major issues, or state the purposes of higher education as teaching, research, and service, serve poorly as accounts of what is done. At best, they function as useful ideologies that throw a net of legitimacy over diverse activities.

Around the multitude of knowledge tasks, each national system of higher education has an historically-derived arrangement. The specific country structures vary in such characteristics as breadth of coverage and the inclusion or exclusion of particular fields and points of view within them. Of primary importance is the prevailing array of operating units, the primary differentiated structure, that historically has been granted, or has acquired, control over the numerous tasks. How is the work of research, scholarship, and training in so many fields distributed to groups? The patterned division of labor conditions

a wide range of specific issues, such as access, certification, and graduate employment, and determines considerably the nature of the problems of coordination and control. All problems of serious re-form are just that, with the re-division and recombination of tasks generally at stake.

The purpose here is to block out some dimensions of academic differentiation and to identify several processes of differentiation, toward categories useful in understanding the structure and evolution of academic systems.

## DIMENSIONS OF DIFFERENTIATION[1]

The internal differentiation of national systems of higher education may occur horizontally and vertically, within institutions and among them. Within institutions, the units differentiated on a horizontal plane may be denoted as sections; the vertically-arranged units as tiers. Among institutions, we refer to the lateral separations as sectors; the vertical, as hierarchies. Sections, tiers, sectors, and hierarchies appear in various forms and combinations in different countries, affecting a host of crucial matters.

Sections. Horizontal differentiation occurs within the individual university or college chiefly in the form of a division of labor by fields of knowledge. Such division has occurred typically at two levels, although complex universities may exhibit as many as four. The broadest groupings, generally known by such titles as Faculty, School, or College, encompass all preparation for a certain occupation; e.g., law, business; or a set of "basic disciplines," e.g., the humanities, the natural sciences. The narrower groupings, which are the basic building blocks or operating units, generally known as Chair,

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[1] An earlier version of these four types of differentiation was developed in Clark (1977a), which also appeared as Working Paper Number 16 of the Yale Higher Education Research Group, February 1977.

Institute, or Department, encompass a specialty within a profession, e.g., Constitutional Law, or an entire basic discipline, e.g., physics. A number of suggestive but fragmentary ideas about such differentiated units may be set forth.

(1) The horizontally differentiated operating units are the institutionalization in higher education of specialization in advanced occupations (including those located mainly within higher education itself), fields of employment able to make some claim to esoteric knowledge and to a need to transmit such knowledge systematically to would-be practitioners. Relations among these units are strongly centrifugal, since the discovery, storing, and transmitting of knowledge can go on within the units in relatively self-contained ways. Nearly all the units need little or no connection to most of the other units in order to accomplish effectively their own tasks, e.g., law does not need archeology, English literature does not need physics. Hence there is not the need for close inter-dependence that obtains in business firms organized around the production and distribution of a set of products. As the operational embodiment of the tasks of higher education, the operating units of universities and colleges tend to give their parent bodies the shape of federations, coalitions, and conglomerates rather than of unitary and single-purpose organizations. Problems of coordination and control are set accordingly.

(2) The strength of the centrifugal force among the operating units depends in part on the commitment of the larger, more encompassing units to specialized training or general education. Specialized training is highly fragmenting, while general education requires the units to take one another into account, fitting their work together as parts of a larger product. European universities have been committed to specialized training. Hence their Chairs, Institutes, and Faculties have tended to have high autonomy, with mutually exclusive personnels, clienteles, and resources, despite their formal location within regional and national public systems that ostensibly

would bring them into close interdependence. In contrast, American liberal arts colleges have been committed to general education. Hence the faculty of their departments have needed to come together in an inclusive all-college faculty that controls "the curriculum" and attends to requirements for students. In short, general education as a task requires more coordination than does specialized training. Again, problems of coordination and control are set accordingly.

(3) The strength of the centrifugal force depends also on the weight of the commitment to the discovery of knowledge versus the transmission of knowledge. Discovery, taking place at the leading edge of specialization within each discipline, has exceedingly high need for autonomous action. In contrast, transmission involves some routine handling of what is already known and classified, and can be coordinated by a group of peers within the disciplinary unit and secondarily by higher level generalists and non-peers. In short: "freedom of research" is more organizationally fragmenting than is "freedom of teaching." Again, problems of coordination and control are set accordingly, with centrifugal forces extremely strong in large research universities.

(4) The horizontally differentiated units vary in the qualities of the bodies of knowledge with which they work. Some departments, particularly in the natural sciences, engineering, and medicine, have well-developed structures of knowledge and exhibit consensus on known paradigms. Other departments, particularly in the softer social sciences, the humanities, and the semi-professions, have poorly integrated bodies of knowledge and are characterized by dissensus over competing and vague paradigms. Internal administration is affected accordingly; e.g., personnel selection is more difficult where dissensus reigns and easier when all members of the department are likely to perceive quality in somewhat similar terms (Lodahl and Gordon 1972).

(5) The basic difference among the lowest operating units in national systems to date has been between Chair organization and Department organization (Ben-David 1972; Blau 1973; Duryea 1973; Parsons and Platt 1973; Clark and Youn 1976). Chair organization, found throughout the European continent, has also predominated in Japan, had extensive influence in Britain, and has spread throughout the world wherever German, French, Italian, Spanish, Portuguese, and English modes of academic organization have been adopted. Departmentalism, found most strongly in the United States, was until recently a deviant form, one rooted particularly in the way that American colleges and universities, under trustee and administrative control, internally differentiated themselves in the nineteenth century without adopting guild-like forms of faculty personal and collegial control that have come down in Europe from the medieval universities. The Chair concentrates the responsibilities and powers of the primary operating unit in one person: it has been the most important systemic source of personal authority in systems of higher education. The Department allows such responsibilities and powers to be assigned to an impersonal unit and there spread among a number of professors of similar senior rank and to associates and assistants of lower rank.

(6) The basic structural difference among the more inclusive operating units in national systems to date has been between relatively specialized Faculties and Schools and comprehensive Faculties and Schools. The prototypic specialized unit concentrates on a profession: law, medicine, architecture, pharmacy. All teachers and students have a common occupational commitment and identity, providing an important internal source of collegiality and cohesion while distancing the unit from others at its level of organization. Such units have bulked large in European universities. The prototypic comprehensive unit has been the American Faculty of Arts and Sciences, embracing dozens of fields, and their carrying departments, across the humanities, the

social sciences, and the natural sciences (Ben-David 1972). The Arts and Sciences Faculty has been recognized as the core personnel unit in the American university, predominating in importance over the faculties of the professional schools. It also amounts to the entire faculty in the American colleges that concentrate on undergraduate education and have few if any professional schools. This unit has heterogeneous membership: its diverse members, specializing in widely disparate fields, have little in common by way of primary occupational commitment and identity, especially in their tasks of advanced training and research. Such diversity strains the limits of collegiality, of the possibilities of guild-like combinations of personal and collegial authority providing sufficient coordination to hold the unit together. The comprehensive scope of such units has called for additional means of coordination, i.e., bureaucratic, with one or more dean's offices set above the departments, staffed with full-time administrators, and linked hierarchically to such central campus administrative offices as president and provost. In cross-national perspective, there seem to be structural as well as historical reasons why campus bureaucracy became characteristic of American universities and colleges.

The importance of internal horizontal differentiation can hardly be overestimated. To take one example of a major problem: access became defined in the late 1960s and early 1970s as the most important problem of the many brought about by expansion of national systems into mass higher education. Research, ideology, and policy alike have tended to treat this problem in global terms, as a problem of entry into a large system. But access has long varied greatly within systems, including the individual university or college itself. Highly structured disciplines such as physics have been relatively difficult to enter and to remain in for an effective length of time. Physicists guard the door with prerequisites, particularly in mathematics; and the

overwhelming majority of students cannot gain access. Among the professional sub-sectors, medicine (in most countries) has particularly learned how to limit access according to "number of laboratory spaces," "effective clinical training," "high per-student costs," etc. In contrast, other disciplines and professional schools are much easier to gain access to and to complete, at least through a first degree. Expansion into mass higher education has widened these internal differentials, with medicine, the natural sciences, and sometimes engineering protecting their standards through limited access, while other units, in humanities, the social sciences, and sometimes such semi-professions as education, take all comers. Through both formal and informal means, access is differentiated across the many fields of knowledge and their supporting organizational sections that in ever larger number constitute the university or college.

We may note also that given universities become comprehensive in order to handle more tasks and do so by adding sections. Among the many forms of overload that expansion often brings, section overload is one of them. We often ask whether an expanded university or college is not attempting to do too much, and therefore whether it needs to surrender some tasks and related sections while holding on to others. Placed in our schema, the question becomes: when should sections become sectors?

Tiers. Vertical differentiation of tasks and activities within individual educational organizations centers on levels of training and certification. There are one-tier and multi-tier national systems (Ben-David 1972; Parsons and Platt 1973). A single tier has predominated in the European mode of academic organization in which the professional school is entered directly after completion of secondary education. The student enrolls immediately in medicine or law or another professional Faculty, or in one of the basic disciplines on the basis that he is entering his chosen field of specialization. The first major degree, taken after some three to six years of course work,

certifies professional or disciplinary competence. Specialized entry into the job market is then supposed to obtain and traditional expectations have been formed accordingly. In some countries, e.g., Italy, there are few if any higher degrees; in others, e.g., Japan, a second o. third degree has been available to only a few. Strong units of organization for work above the first degree have been non-existant or only weakly developed. If there is a Ph.D., it is handled by the same faculty unit that concentrates its energies in first-tier operations.

Two distinct tiers have predominated in the American mode of university organization. The first tier is largely involved in general education, with limited specialization available as students choose a major subject on which to concentrate in the last two of four years. The first major degree, the bachelor's, does not in most cases certify any particular professional competence, giving most of its holders a general and ambiguous connection to the job market rather than a specific and clear connection--with expectations shaped accordingly. Specialization has found its home in a second tier that is clearly set off in a combination of a graduate school and separate professional schools that can only be entered after completion (or at least several years) of the first level.

Tier structure has wide effects. As one example: the problem of access varies greatly. It is most severe in those systems that have only one tier. Mass entry then means the right of everyone who completes the secondary level to enter into the one meaningful level, specialize within it, and graduate with a certified job-related competence. In Europe, selectivity for any of the fields, including the professional ones, has been a major political battle--the issue of numerus clausus--since to insert selection appears to deny mass access and at a time when more middle-class and lower-class students are graduating from the secondary level. In multi-tier structures, the lower

level, or levels, can offer open-door or mass access, while the upper level, or levels, operate selectively. No one finds it strange in the United States that graduate schools, law schools and architecture schools can be highly selective. The lower levels screen for the upper levels, just as in the past the secondary level, before it became universal, screened for higher education. The internal vertical differentiation of levels within higher education allows the screening function to move up the educational ladder another level or two. Thus, it combines open and limited access.

We may predict increased vertical differentiation in national systems toward four and five levels. In degree structure, the American system already has four: a two-year Associate in Arts degree, the four-year Bachelor's degree, the five- and six-year Master's degree, and the eight- to ?-year Ph.D. degree. Under the burdens of expansion into mass higher education, single-tier systems are "innovating" with first, second, and third "cycles" (France), national testing devices (West Germany), and various other ways of establishing vertical tapering funnels, explicitly as well as covertly, to cope with the tensions of mass entry and selective training, general and specialized education, teaching and research. In increasingly complex systems, different academic interests become somewhat protected and less conflicting as they become lodged at different levels.

Sectors. Horizontal differentiation among institutions within systems of higher education takes a number of forms among which we can note three for purposes of early classification and comparison. One is a single sector only, under state control, found in nationalized sets of universities that monopolize higher edcation, e.g., Italy (Clark 1977b). The second is a binary, or multi-type, structure, but also under state control, in which the several types--the university, the teacher training college, the technological school--serve as major parts of a single system under the same public purse. France is a

clear example, with its major division between Grandes Ecoles and universities (T. Clark 1973; Van de Graaff and Furth 1978); and Britain has evolved rapidly toward this type since the mid-1960s as the national government has become the prime supporter of the universities (old and new), the polytechnics and the teachers colleges, and more inclined toward planned differentiation (Halsey and Trow 1971; Perkin 1977). The third type of structure is one that has a mix of sectors that have different bases of financial support, such as public and private, or national, provincial, state, and local government. Japan is an instance of this most heterogeneous type, with imperial universities, other public institutions, private universities, and private colleges (Passin 1972; Cummings 1976; Wheeler 1978). The Japanese moved into mass higher education mainly by expanding the private sectors, the opposite of what happened in the United States, to the point where over seventy-five percent of enrollment appeared in private institutions.

The United States is the strongest case of the third type, with 3,000 institutions varying so widely in type that recent classifications have gone to ten or more categories even without the use of the public-private distinction (Carnegie Commission 1973). This differentiation has led to features of institutions other than the research-centered universities which continue to be widely overlooked by research scholars: e.g., over one-half of all students entering higher education enter community colleges, which numbered over 1,000 by the early 1970s; about a third of all enrollment is in the community colleges, over a third is in four- and five-year colleges, and less than a third is in "universities," i.e., institutions that award at least ten doctorates a year (Carnegie Commission 1973). Within the university category, at least a third of the enrollment is in institutions better classified as service universities than as research universities, i.e., they have teaching loads of nine hours a week or more that preclude much research and tilt

the reward system away from research productivity and toward teaching performance and service to the institution (Fulton and Trow 1975). Less than a fifth of American students and faculty are in the research universities that couple teaching and research to a major degree, in conformity with the traditional model idealized in the three major systems of Germany, Britain, and the United States by the end of the nineteenth century.

Hierarchies. Vertical arrangements of sectors are of two sorts: high and low placement based on level of task; high and low placement based on socially-assigned prestige, which is often but not always closely related to the first form of placement. The first form comes from horizontally-differentiated sectors having tasks that cover rungs in the educational ladder, with sectors then taking up location at lower and higher rungs, lower ones feeding to higher ones. In the United States, the typical tripartite differentiation of state systems has the community college coterminous with the first two years in the basic structure of grade levels, the state college overlaps the first and extends to take in another two to four years, through bachelor's and master's degree level, and the state university overlaps both the first two institutions and extends upward another several years to the doctoral degree and post-doctoral training. The feeder-institution sequence runs strongly from the first to the second to the third; students pass along to "higher" classes of institutions because they are moving upward through levels of training that are assigned differentially to sectors.

Hierarchy by prestige ranking of sectors is based considerably on perceived social value of institutional output. Where are graduates placed in the labor force and otherwise in social circles that shape life chances? The feeder structure mentioned above and others like it involves graduates stepping out into the labor force at different prestige levels that are automatically assigned by public perception back upon the training institutions--the

differential prestige of doctor, teacher, and secretary assigned to university, four-year college, and two-year college. Such sector ranking is characteristic of American higher education. A parity of esteem is not likely to occur, especially for whole sectors, when tasks are performed that are differentially valued in the general population (Banks 1955).

Non-feeder structures also contain sector ranking. Students do not move on from one sector to another across permeable boundaries but enter and stay largely within water-tight sectors that place differently. The Grandes Écoles in France constitute a sector that is autonomous from and socially superior to the university sector, providing a sharp institutional hierarchy within which about ten percent of the students are guaranteed elite futures. The imperial universities in Japan, and especially the University of Tokyo and the University of Kyoto, have been similarly ranked very high above other institutions, with that ranking fixed in guaranteed high placement of graduates in business and government.

Such hierarchies are found in varying degree and form in all systems of higher education about which some dependable information is available. Research on the patterns of variation will help to explain much about system performance and the organizational environment of universities and colleges.

## PROCESSES OF DIFFERENTIATION

If useful dimensions of differentiation are difficult to identify, given our current state of knowledge, the processes of differentiation are even more difficult to illuminate in a satisfying manner. Basic research is lacking on such crucial matters as the ways in which disciplines emerge and penetrate universities structures to become permanent parts of them, how prevailing disciplines split or recombine their parts to form new sections, and why some systems evolve multiple levels of training more than do others. The best ideas

currently available give us some insight largely on the development of institutional types, hence on sector differentiation. We set forth these ideas under the following topics: the birth and persistence of institutional types; the transference of types; structural responses to growth; and the legitimation of different institutional roles.

Birth and Persistence of Organizational Types. Much can be learned about the differentiation of academic systems by analyzing the historical origin, and especially the persistence over long periods of time, of the major forms that comprise existing structures. In this developmental approach, the units of analysis are current components but the search is historical, seeking answers to the questions: Why did the form originate? Once initiated, why did it persist (often enduring over decades and even centuries of marked turmoil and change)? How did earlier forms condition later ones as they emerged?

The question of origins is the most difficult of all for systematic answer, since the particularisms of time and place seem to make exceptions which outweigh all possible rules. But as Stinchcombe (1965) has indicated, we can at least objectively determine that different historical periods have given rise to different forms of organization that are with us today. The possibilities and constraints of a particular time, whatever their configuration, were the setting within which a certain form originated, became an established pattern, and then endured into the present, still showing basic aspects of the shape with which it began. The first European universities emerged at a time when guilds were a primary form of occupational organization, and they early became constituted around guild forms that have in modified forms persisted for centuries right up to the present time (Clark 1977b). The colonial setting of pre-Revolutionary American colleges gave rise to the combination of small, detached colleges and general supervision by lay trustees, features that have had pervasive permanent influence. Explanation of how differentiation has come

about needs to explore historical roots.

But the question of persistence seems the more central one. Following Stinchcombe, we may suggest three possibilities. Persistence may possibly be rooted in apparent effectiveness: a given type of organization or form of control seems to remain a more efficient tool than its possible competitors. Or, persistence may stem from lack of competition: the form in question may have developed a protected niche within a domain of units and never had to face an open battle against other forms that may be equally or more effective. Or, persistence may follow from a set of sociological tendencies that turn an organizational form into an end in itself, a social institution. Participants work to perpetuate a form that serves and protects them as they develop legitimated rights, become a vested collective interest, and develop appropriate ideologies that justify the traditional ways and their control. These sociological phenomena are seemingly at the heart of organizational persistence, particularly since they tend to develop a recognized and stable niche for an institutional form that protects it against possible competitors and thereby makes irrelevant the rational question of comparative effectiveness.

These sociological sources of persistence are likely to be strong in higher education systems, since they normally depend rather strongly on normative and symbolic bonding and relatively little on coercive and instrumental form of coordination. Hence they are rich in ideologies that justify traditional practice and legitimate the rights of certain practitioners, e.g., the ringing rhetorics of "the liberal arts," "the community of scholars," "the freedom of teaching and research." Certain types of colleges and universities, and certain forms of academic control, exhibit a stubborn capacity to survive all types of pressure, including the efforts of powerful reformers. And so often the institutionalizing forces are bolstered by the monopoly position typically given to sectors of public organization. In most countries, all of higher

education is under the aegis of the national government and within the administrative domain of a single agency. Within the agency, as earlier outlined, there is typically either a monopoly of form by the public university or a minor division of labor between the university form and one or two other forms such as the teachers training college and the technological institution, each with a monopoly over a respective function. Appearing most deeply in the European mode of academic organization, the public university financed by national government has had such dominance in role that it has acquired overwhelming dominance in prestige. The words "university" and "higher education" are used interchangeably, often even by American observers. Thus, domain monopolies interact strongly with institutionalizing forces to give great persistence to forms of organization and control in higher education. Differentiation is then in part an accumulation of historical deposits.

Transference of Organizational Types. In new nations, or nations newly attending to the development of higher education, organizational forms commonly are brought from elsewhere, not independently invented. The establishment of the old forms in new settings poses intriguing questions of the manifest and latent intentions of the colonial or native founders. Whatever those reasons, the transferred forms must be adapted to survive in a different context, one ringed about with a different set of external constraints and demands and driven internally by different perceived interests. The types are then likely to come out very differently as part of the academic differentiation of the new from the old in the receiving country. The internal aspects of implementing the transference of types of universities and colleges in the receiving country have thus far been poorly studied, other than in the case of India (Ashby 1966, Altbach 1972), subordinated by simplistic views of a few scholars going abroad and bringing home a new form, or of a clear decision by a governmental elite to borrow wholesale from the most prestigious international model of the time,

or of a simple imposition by a metropole colonial power of one of its own types. It has often been noted that American scholars went to Germany in the latter part of the nineteenth century, were there favorably impressed by the German research university, and, returning home, brought the research university to America. But what they brought back was a strengthened idea that fitted the interests of scientists who had for some decades been developing a place for scientific research in the American college (Guralnick 1975). They did not bring back the Chair organization which was central to the functioning of the German university. Nor did they bring back the German structure of first-tier specialization. Instead there had to be devised the second-tier graduate school as a way of handling research and advanced specialized training in settings where the four-year liberal arts college was deeply rooted (Ben-David 1972).

In the case of Japan, officials of the modern Japanese state explicitly sought to speed the modernization of their higher education in the late nineteenth and early twentieth century by reaching to Western societies for modes of organization as well as technology. But the borrowing was highly pragmatic: chair organization within the university seems to have come primarily from Germany, but national ministry control had to be studied in France not Germany. And much development was not state-planned: private colleges, mainly an import from the United States and Britain, were initiated and controlled by foreign missionaries and churches. The Japanese conditions resulted in the extensive differentiation of sectors discussed earlier and a steep prestige hierarchy of institutions, the latter affected by deliberately concentrated investment of the national government in the Universities of Tokyo and Kyoto, and a second group of imperial universities, as training places for governmental cadres and pace-setters for the rest of the system.

Questions of international influences--weighing, borrowing, and adapting

organizational forms--might well be more deeply explored for older countries, as on the European Continent, as a part of developmental analysis. Nations, sometimes in response to ambitions, often in response to a worsening international position or defeat in war, question the efficacy of their institutions, including higher education, and look abroad for solutions. International comparative evaluation is then a way of challenging momopolies of form and group control at home. Certain functions, preeminently scientific research, lend themselves more readily than others (such as teaching) to comparisons among nations, and are also commonly perceived as directly impinging upon the national welfare. But with their great differences in culture and social organization, nations have also varied greatly in willingness and capacity to look to the outside: for example, in Europe during the last century, Italy less than Sweden, Spain and Portugal less than Italy. It is possible for countries to virtually seal themselves off culturally for a century or more, even when bordering on the most imposing national models of the time. Since World War II, however, the pace of inter-nation learning about the strengths and weaknesses of different forms has steadily increased, e.g., on departmental structures, comprehensive universities, open universities.

Responses to Growth. A process-centered perspective on academic differentiation that is drawn from general sociological thought on structural differentiation as a response to growth in size and function has been applied to higher education in research by Smelser on public higher education in California (Smelser 1974).His study detailed a set of six possible responses to rapid growth: (1) to increase the size of the system's units, without modifying their structure; (2) to create new, separate units that are similar in structure to the existing units; (3) to shift the emphasis of functional activities, so that some parts of the system perform more, others less; (4) to add or discard functions; (5) to add new structures with different functions, without

substantially modifying the existing structures; and (6) to split general-function units into two or more specialized units. The first three responses actually took place in the University of California system between 1950 and 1970, while the latter three did not, producing a mix of responses that led to a university system more "ripe for conflict, because its structure was producing some significant groups with intense feelings of deprivation and disaffection" (Smelser, 1974, p. 111). The responses that occurred did not produce a more finely tuned formal division of labor. Nor did the growth of regular faculty keep pace with the requirements of the responses that were made. Teaching assistants and research personnel were expanded rapidly to handle the load within the terms of the traditional units, thereby creating large groups who did crucial work but felt poorly rewarded. As ancillary personnel staffed more classrooms, faculty withdrew from undergraduate teaching even more than before, thereby increasing the sense of deprivation among undergraduate students. The general structure was not changed; new segments and roles within it were not clearly developed, formally recognized, and supported with legitimating doctrines. Instead a partial differentiation of new roles, with only minor rewards and insufficient legitimacy, developed. The outcome was, as Smelser has pointed out, "a classical Tocquevillian situation: an elite class retaining its powers and formal responsibilities while allowing the performance of some of its duties to slip into other hands" (Smelser 1973, p. 409).

This chain of events has occurred in even sharper form in systems in other countries (Clark 1977b). Expansion from elite to mass numbers of students in European systems during the 1960s was generally handled by simply increasing the size of existing units, without modifying their structure, and adding similar units. Typically, the senior faculty expanded relatively slowly and held onto traditional prerogatives within guild-like clusters of chairholders.

The extra work produced by expansion was assigned to large cadres of junior faculty and research assistants. They received relatively minor rewards, and the swarms of students became more distanced from the senior professors. The lack of certain structural responses during crucial years of rapid expansion, such as adding new units with different functions (e.g., creating short-cycle or first-cycle units) and modifying the structure of existing units (e.g., from Chair to Department organization), thus contributed to (a) a work overload, (b) a large gap between responsibilities and rewards among subordinate personnel, and (c) the growth of feelings of deprivation among all groups, including, in time, senior professors themselves. Institutional insufficiency became widespread, as forms long worked out for small-scale organization were retained in what had become exceedingly large academic complexes.

The broadest policy implication one can draw for the viability of academic structures, from the experience of expansion--and now of contraction--is that structural differentiation, planned or emergent, is the name of the game in mass higher education.

The Legitimation of Institutional Roles. The central sociological and administrative problem in the differentiation of sectors is the legitimation of organizational roles. To stabilize a role, a sector must believe in the importance of its line of work, its distinctive mix of tasks, developing a doctrine that leads its members to fight for its separate development and causes outsiders to support it. Without legitimating ideology as anchor, a sector will move toward the roles of others that have been strongly legitimated. Weak role legitimation produces academic drift, the convergence of several institutional types on a single form. Such drift occurs in both planned and unplanned systems. The California system of higher education, under its well-known 1960 Master Plan, attempted to stabilize a tripartite structure of

community college, state college, and state university. The community college role became legitimated and increasingly institutionalized; while the state college role was not accepted by the personnel of the colleges and did not become well anchored. As a result, the colleges have evolved, de facto and de jure, toward the university role. In general, the chief form of academic drift in American higher education over the last three to four decades has been that of public four-year colleges moving away from the unwanted role of teaching teachers, and otherwise concentrating on bachelor's level career preparation, and toward the standing of a university. Numerous institutions have moved along a path from normal school to teachers college, to state college, to state university. In Britain, planned and unplanned differentiation has been diminished over many decades by the drift of institutional types upward in the academic pecking order, toward university status and particularly toward features characteristic of Oxford and Cambridge (Pratt and Burgess 1974). The same phenomenon has been observed in Australia, where a "second-best" sector converges on a more prestigious university sector (Harmon 1977). The displacement of colleges out of an unwanted role may occur repeatedly in a single location, each time leaving a vacuum of attention to a needed task that brings another institution into the unoccupied territory, soon itself to move on to apparently higher rewards.

Distinctive institutional roles may be legitimated in various ways. In tightly administered systems, governmental fiat may establish and maintain a differentiation of sectors. In loosely administered systems, different bureaus may serve as the supporters and protectors of different sectors, isolating their "own" schools from the pressures of uniformity within a single encompassing ministry. In market systems, competing sets of institutions may find protective niches of attracted funds, personnel, and clientele, differentiating themselves as they differentiate locations in the general market. And the conditions of

competition generate some entrepreneurial search for advantage in being different. On balance, dispersed control seems to favor diversity. But the evidence is far from clear on this point, and much research is needed on the conditions in academic polities and academic markets under which the institutional forms of higher education diverge or converge.

Many of the basic problems faced by national systems of higher education, especially when expanding or contracting rapidly, vary greatly according to the extent and form of their differentiation of sectors. The single-sector arrangement that we identified earlier is the type most vulnerable to task overload and to new functions diminishing old functions. These effects tend to call forth efforts to differentiate sectors, overtly or covertly, to handle different tasks, reduce the conflict produced by contradictory expectations, and protect old functions. For example, European scientists now find it problematic whether scientific research can remain within all their universities, as the teaching and participation duties of faculty in mass higher education come to dominate available time, encouraging them to attempt to separate a few research-centered universities from the rest. In contrast, the heterogeneous-sector type of system organization is susceptible to charges of institutional inequality by personnels and clienteles alike, since the different institutional types are unequated in access, treatment, output, and rewards, and various "have-nots" press for equity. Transferability across boundaries of sectors also become a key organizational problem. The pressures of reform are then in the direction of equating institutions and equalizing courses, programs, and degrees.

## CONCLUSIONS

The knowledge work of higher education is carried out in every country in a differentiated structure that divides and allocates tasks within and

among institutions. Certain features of differentiation are likely to be common among national systems: the basic sectioning of the natural sciences in such fields as physics, chemistry, and biology, and well-defined sub-fields thereof, has wide currency. But many features of differentiation vary widely among nations: the division of labor among institutional types, or sectors, is subject to the particulars of time of origin and institutional context in each country. Whatever the combination of sections and tiers within institutions, and sectors and hierarchies among them, the prevailing structure sets many of the problems of coordination and control and conditions nearly all important issues of continuity and reform. An understanding of the basic structure becomes the footing for better comprehension of a wide range of problems and issues.

The traditionalized assignment of tasks to groups in complex systems is never a matter of strict organizational routine, a dry subject to be pushed aside while one attends to broad policy and major decisions. The differentiated structure itself is a mobilization of bias, a face of power. It strongly mobilizes some points of view and group interests by giving them footing in, and control over, day-to-day operations, while excluding others from the agenda of action. Hence to study academic differentiation is not only to determine the academic division of labor in its specific operational settings. It is also a pursuit of the expression of academic values and the foundations of academic power.

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